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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

50 CFR Part 660

[Docket No. 190215127-9460-02]

RIN 0648-BI73

Fisheries Off West Coast States; Coastal Pelagic Species Fisheries; Multi-Year Harvest Specifications for the Central Subpopulation of Northern Anchovy

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Final rule.

SUMMARY: NMFS is implementing this final rule to establish the overfishing limit (OFL), acceptable biological catch (ABC) and annual catch limit (ACL), for the central subpopulation of northern anchovy in the U.S. exclusive economic zone (EEZ) off the Pacific coast under the Coastal Pelagic Species Fishery Management Plan. NMFS prepared this rulemaking in response to a January 2018 court decision (*Oceana, Inc. v. Ross*) that vacated the OFL, ABC, and ACL for the central subpopulation of northern anchovy, followed by subsequent orders requiring NMFS to establish a new OFL, ABC, and ACL through a notice and comment rulemaking. NMFS is implementing an OFL of 94,290 metric tons (mt), an ABC of 23,573 mt, and an ACL of 23,573 mt. If the ACL for this stock is reached or projected to be reached, then fishing will be closed until it reopens at the start of the next fishing season. This rule is intended to conserve and manage the central subpopulation of northern anchovy off the U.S. West Coast.

DATES: Effective *[insert date 30 days after date of publication in the FEDERAL REGISTER]*.

ADDRESSES: Copies of the Final Regulatory Flexibility Analysis are available at NMFS West Coast Region, 501 W. Ocean Blvd., Suite 4200, Long Beach, CA 90802.

FOR FURTHER INFORMATION CONTACT: Joshua Lindsay, West Coast Region, NMFS, (562) 980-4034.

SUPPLEMENTARY INFORMATION: The Coastal Pelagic Species (CPS) fishery in the U.S. EEZ off the West Coast is managed under the CPS Fishery Management Plan (FMP). The Pacific Fishery Management Council (Council) developed the FMP pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), 16 U.S.C. 1801 *et seq.* The six species managed under the CPS FMP are Pacific sardine, Pacific mackerel, jack mackerel, northern anchovy (northern and central subpopulations), market squid, and krill. The CPS FMP is implemented by regulations at 50 CFR part 660, subpart I.

Management unit stocks in the CPS FMP are classified under three management categories: active, monitored, and prohibited harvest species. Stocks in the active category (Pacific sardine and Pacific mackerel) are managed under catch limits set using regular stock assessments and regular or annual adjustments of target harvest levels based on those stock assessments. Fisheries for these stocks have biologically significant levels of catch, or biological or socioeconomic considerations requiring this type of relatively intense harvest management procedures. In contrast, stocks in the monitored management category (jack mackerel, northern anchovy, and market squid¹), are

¹ Market squid is statutorily exempt from the general requirement to be managed using an ACL because of its short life-cycle.

managed under multi-year catch limits and annual reviews of available abundance data without dictated regular stock assessments or annual adjustments to target harvest levels. Fisheries for monitored stocks do not have biologically significant catch levels and, therefore, do not require intensive harvest management. As a result, monitored stocks have been adequately managed by tracking landings and examining available abundance indices. Species in both categories may be subject to management measures such as catch allocation, gear regulations, closed areas or closed seasons. For example, trip limits and a limited entry permit program apply to all CPS finfish. The prohibited harvest species category is comprised only of krill, which is subject to a complete prohibition on targeting and retention.

Compared to the management framework for stocks in the active category, which uses annual estimates of biomass to calculate annual harvest levels, the ACLs for the monitored finfish stocks are not based on annual estimates of biomass or any single estimate of biomass. As described above, ACLs for monitored finfish are set at the ABC levels, which are no higher than 25 percent of the OFL. OFLs are set equal to estimates of MSY—an estimate that is intended to reflect the largest average fishing mortality rate or yield that can be taken from a stock over the long term, if contained in the CPS FMP, or set based on a stock-specific method if deemed more appropriate. Although the control rules and harvest policies for monitored CPS stocks are simpler than the active category control rules, the inclusion of a large non-discretionary buffer between the OFL and ABC both protects the stock from overfishing and allows for a relatively small sustainable harvest while also meeting the goals and objectives of the CPS FMP including helping to achieve optimum yield (OY). In recognition of the low fishing

effort and landings for these stocks, the Council chose this type of passive management framework for some finfish stocks in the FMP because it has proven sufficient to prevent overfishing while allowing for sustainable annual harvests, even when the year-to-year biomasses of these stocks fluctuate.

On January 18, 2018, in *Oceana, Inc. v. Ross*, the U.S. District Court for the Northern District of California granted summary judgment to Oceana, vacating OFL, ABC, ACL for the central subpopulation of northern anchovy (hereafter, simply “central anchovy”). This ruling, in combination with subsequent court rulings, requires NMFS to submit for publication a final rule re-establishing these reference points no later than May 28, 2019. Therefore, NMFS is implementing through this action a new OFL, ABC and ACL that will be in effect beginning in the 2019 fishing year and that would remain in place until new scientific information becomes available to warrant changes. Additional details about management framework for stocks in the CPS FMP, as well as the process used to determine these new reference points, is discussed in the proposed rule for this action (April 8, 2019; 84 FR 13858), and are not repeated here.

NMFS determined that with the limited time available to review and analyze more complex approaches for setting these reference points, the most appropriate path at this time for setting an OFL for central anchovy in accordance with the FMP is to use an approach similar to the approach used by the Council, and approved by NMFS, for developing an OFL and ABC for the northern subpopulation of northern anchovy (NSNA) in 2010.

Consistent with the approach used to set the NSNA reference points, the OFL, ABC, and ACL in this rule are based on averaging three of the available four recent

estimates of the relative abundance for central anchovy from NMFS surveys and an estimate of the rate of fishing mortality for central anchovy at MSY or E_{MSY} .² The abundance estimates are from the 2016 and 2018 NMFS acoustic-trawl method (ATM) surveys, which are 151,558 mt and 723,826 mt respectively and the 2017 NMFS daily egg production method (DEPM) survey, which is 308,173 mt. An ATM estimate was also available for 2017. However, NMFS evaluated the 2017 estimate compared to the other ATM estimates, and decided, for this rulemaking, to exclude it from the analysis to generate catch limits. NMFS did so because the ATM survey in the summer of 2017 was focused off the northern portion of the U.S. West Coast as well as the west coast of Vancouver Island, British Columbia, Canada, and was not designed to sample the complete range of central anchovy. The principle objectives of this survey were to gather data on the northern stock of Pacific sardine, and to some extent, the northern stock of northern anchovy, and therefore the survey chose not to sample south of Morro Bay, California, which is area where central anchovy are typically found.

The fishing mortality rate estimate is from an analysis that the NMFS Southwest Fisheries Science Center (SWFSC) completed in 2016 as part of an effort examining minimum stock size thresholds for CPS. For potentially deriving an E_{MSY} , this analysis used the most current time-series data available, which comes from the last model-based stock assessment for central anchovy completed for formal management purposes (Jacobson *et al.* 1995). This analysis produced estimates of F_{MSY} based on eight alternative models. We have used the average of the four best fitting models from that work to calculate an E_{MSY} of 0.239. This methodology, as more fully described in the

² The calculation uses an E_{MSY} , which is the exploitation rate for deterministic equilibrium MSY and although similar in context is slightly different than a calculation of F_{MSY} .

proposed rule results in an OFL of 94,290 metric tons (mt), an ABC of 23,573 mt, and an ACL of 23,573 mt, all of which are being established through this action.

In determining whether to use the abundance estimates described above, we considered scientific reviews presented to the Council at its April 2018 meeting, which stated that ATM estimates cannot be considered absolute estimates of biomass and should not be used to directly inform management on their own. These reviews concluded that, unless ATM estimates are used as a data source in an integrated stock assessment model, two things would need to occur before they are used to directly inform management, including: 1) addressing the area shoreward of the survey that is not sampled; and 2) conducting a management strategy evaluation to determine the appropriate way to incorporate an index of abundance into a harvest control rule. However, we are comfortable at this time with using these ATM estimates, because the acoustic estimates represent recent information on the stock and can be considered minimum estimates of the stock size, and using these estimates in a time series to set an OFL, in combination with reducing the OFL by 75 percent to set the ABC and ACL, will prevent overfishing. Therefore, NMFS determined that using these ATM estimates in the manner described above represents use of the best available information for determining the reference points in this rule.

The Council developed, and NMFS approved, the monitored stock management control rules and overfishing specification process as consistent with the best scientific information available. Monitored stock management, including the buffer between the OFL and ABC that is built into the harvest policy for CPS stocks, appropriately accounts for the various types of scientific uncertainty around the OFL estimate and also takes into

account other considerations associated with meeting the goals and objectives of the CPS FMP. This action sets the ACL equal to the ABC per the framework in the FMP. The CPS FMP states that the ACL for stocks in the monitored management category are set equal to their ABC or lower if it is determined necessary to prevent overfishing or for other OY considerations. When deciding whether to reduce the ACL to prevent overfishing, the primary condition that would necessitate NMFS setting an ACL at a level lower than ABC would be if NMFS determined that landings could not be adequately tracked in-season to prevent harvests from exceeding the ABC. However, setting the ACL at a level lower than the ABC, or establishing an additional ACT to account for management uncertainty and to prevent overfishing is unnecessary, because managers have the ability to track the landings of this fishery and close the fishery if necessary to ensure the ACL, and, therefore, to ensure that the ABC is not exceeded.

As for setting the ACL at a level lower than ABC for OY considerations, no probative information has been presented that requires reductions in the ACL based on economic or social reasons. Oceana asserted that prey dependency (a potential “ecological consideration” that they note) dictates reductions, however, as discussed in the responses to Comments 5 and 6 below, there is no credible scientific record for that assertion. The ACL will sufficiently limit harvests of central anchovy on an annual basis to both conserve the ecosystem and prevent overfishing of the stock.

These reference points will remain in place until changed conditions necessitate revisions to the FMP framework or changes to the reference points pursuant to the existing framework. If the ACL is reached, or about to be reached, the fishery will be closed until the beginning of the next fishing season. The NMFS West Coast Regional

Administrator would publish a notice in the **Federal Register** announcing the date of any such closure.

This action also implements a minor revision to 50 CFR 660.509 to clarify the NMFS West Coast Regional Administrator's authority to close a CPS fishery by announcement in a notice published in the **Federal Register**, per the CPS FMP, when an ACL is reached. Currently this section describes the Regional Administrator's authority for implementing in-season closures only when a directed fishery allocation or incidental allocation is reached.

On April 8, 2019, NMFS published a proposed rule for this action and solicited public comments (84 FR 13858), with a public comment period that ended on April 23, 2019. NMFS received 10 comment letters on the proposed rule. Some of the letters included multiple comments, and some letters contained comments similar to comments in other letters. NOAA summarizes and provides responses to the comments below. We note that some comments included recommendations to change the default ABC control rule for monitored stocks, the OY specification for central anchovy, and the central anchovy management framework, but none of these measures were within the scope of this rulemaking. Even though these recommendations were not within the scope of this final rule, for information purposes only, NMFS also respondse to these recommendations below. No changes were made from the proposed rule stage in response to the comments received.

Comments and Responses

Comment 1: One of the comments provided by the environmental non-governmental organization Oceana stated that the proposed action was not consistent with the CPS FMP, specifically the framework for setting the OFL, ABC, and ACL for

stocks in the monitored management category of the FMP. The commenter notes that the prior MSY estimate for central anchovy was based, to some degree, on a long time series of abundance estimates, whereas the proposed MSY value and OFL are only based on 3 years of abundance estimates. The commenter questions NMFS's choice of abundance estimates, as well as why NMFS did not use other available abundance estimates. The commenter notes that by excluding other abundance estimates or not considering them, NMFS does not ensure management measures prevent overfishing if the stock declines below NMFS's selected average biomass. Finally, the commenter states that, in other recent abundance estimates, central anchovy abundance was below the ACL proposed in this action.

Response: NMFS used the best scientific information available to determine the OFL for central anchovy. As described in the preamble of the proposed rule, under the default framework established through Amendment 13 (76 FR 70362, November 14, 2011) the OFL had been set equal to the existing MSY value in the FMP. This MSY value was set in Amendment 8 to the FMP. Using this approach again would have resulted in the OFL that was vacated in the court decision on *Oceana v. Ross*. For this reason, the commenter is correct that NMFS did not use the default method described in the FMP. Instead, NMFS derived reference points using an alternative approach.

NMFS did not attempt with this rule to "update" or calculate a new MSY value for central anchovy and it was not necessary to do so. As stated in the preamble of the proposed rule, although a default method is described in the FMP for setting reference points for stocks in the monitored management category of the FMP, the OFL may also be determined using a stock-specific method. For example, when determining the OFL

for the northern subpopulation of northern anchovy (NSNA), the Council recommended a stock-specific approach to calculate an OFL instead of the FMP default method. Section 4.6.1 of the CPS FMP states that “the Council may use the default harvest control rule . . . for Monitored species unless a better species-specific rule is available.” For this action NMFS determined that although a viable MSY estimate for central anchovy still exists in the FMP, a stock-specific approach was more appropriate for calculating the OFL.

Additionally, although NMFS did not explicitly recalculate a new estimate of MSY for central anchovy, one of the central tenets of the management framework for stocks in the monitored management category is that, unlike stocks in the active management category whose OFL and ABC change every year, the OFL and ABC for stocks in the monitored category remain in place until new scientific information becomes available to warrant changing them or they are moved to the active category. Therefore, not only did NMFS determine that the OFL and ABC in this action are based on the best scientific information available, NMFS also determined that these values are robust enough to remain in place for multiple years and still prevent overfishing.

Although the vacated reference points were set using long-term information and thus were representative of the long-term population structure and variability of central anchovy, the District Court indicated that the vacated reference points were not reflective of recent biomass levels. To address this concern, NMFS attempted to use recent abundance estimates in the current rulemaking. In making this decision, NMFS examined historical estimates from past central anchovy stock assessments, specifically the time series of spawning stock biomass produced by the 1995 assessment. That stock

assessment was subject to a formal scientific review and was determined to be the best scientific information available estimating the biomass of central anchovy for 1994. NMFS reviewed this information, to compare more recent abundance estimates to historic biomass estimates. This comparison revealed that the recent ATM and DEPM biomass estimates used to calculate the OFL implemented in this action fell well within the range of historic estimates. The average of the recent three abundance estimates was similar to the average biomass over the historic timeframe. The average spawning stock biomass from 1963 to 1994 using values produced by the 1995 stock assessment was approximately 400,000 mt, with a median of 346,500 mt. Averaging abundance estimates from the three recent years used in this final rule (151,558 mt, 308,173 mt, 723,826 mt) produces a very comparable average biomass of 394,519 mt. The highest stock biomass estimate over the historic timeframe according to the 1995 stock assessment was approximately 1.1 million mt, and the lowest was 138,000 mt.

The commenter also states that NMFS did not consider other data sources that provide longer term estimates of central anchovy abundance and that show that the values chosen by NMFS are not valid. Specifically the commenter cites estimates from two scientific papers, a MacCall *et al.* 2016 (MacCall paper) and a Thayer *et al.* 2017 paper. (Thayer *et al.* 2017 is also used by the commenter as a reference to a Thayer 2018 citation that includes estimates only presented as a public comment to the Pacific Fishery Management Council in 2018.) The commenter also cites apparent total abundance estimates from egg and larval data produced by NMFS, other than the DEPM estimate used for this rulemaking. In previous reviews and for multiple reasons, NMFS and other independent scientists determined that the estimates of abundance from the MacCall

paper were not the best scientific information available on the status of total central anchovy population. NMFS and other outside scientists had concerns regarding the method used to expand the trend information into estimates of absolute or total abundance. Also, NMFS and outside scientists identified inherent issues with using data from only the California Cooperative Fisheries Investigation (CalCOFI) core region for estimating total biomass, as the spatial scale of this region does not encompass the range of central anchovy, as well as the high uncertainty in the estimates the paper produced. In 2016, NMFS fishery scientists and other outside scientists highlighted technical flaws in the method the MacCall paper used to derive population estimates in presentations to the Council. In NMFS' judgement, these issues rendered the estimates unreliable as a measure of the total stock abundance. NMFS presented an analysis at the Council's November 2016 meeting (*i.e.*, attempted "DEPM-lite") that confirmed some of the technical weaknesses with the MacCall paper's estimation method and that same method is used for the estimates in Thayer *et al.* 2017 and Thayer 2018. The Council's Science and Statistical Committee (SSC) agreed with NMFS's analysis of these technical weaknesses with the methods used to derive the biomass estimates in the MacCall and subsequent Thayer papers. NMFS analysis presented to the Council in November 2016, as well as a separate publication by NMFS scientists (McClatchie *et al* 2018), also highlighted some of the practical reasons why the stock was likely never as low as calculated or purported by the original MacCall paper and subsequent Thayer papers. For this action, NMFS re-reviewed the MacCall paper and reviewed the subsequent estimates utilizing this same method (Thayer *et al* 2017 and Thayer 2018) and believes that these

estimates do not represent the best scientific information available currently on the population status of central anchovy.

In fact, Thayer 2018, presented revised estimates from Thayer *et al.* 2017 that were drastically higher than they had previously reported, further raising issues with the accuracy and usability of the MacCall and Thayer estimates for calculating an OFL. Specifically, Thayer *et al.* 2017, reported population levels for the years 2012-2016, extending the MacCall 2016 estimates beyond 2011 (the last year included in that paper), and stated that central anchovy total abundance in 2015 was 5,300 mt and that the 2016 population level was probably similar to the 2015 estimate. However, Thayer 2018 revised the Thayer *et al.* 2017 estimates for 2015 and 2016 to 92,100 mt and 153,200 mt respectively; these revised estimates are approximately 30 times higher than the Thayer *et al.* 2017 estimates from the previous year.

This is not to say that all of the information produced by these papers is uninformative. If, for use as total estimates of the central anchovy population, or for determining a reliable OFL for the purpose of this rule, NMFS determined that the MacCall and Thayer papers did not represent the best scientific information available. The data used by NMFS in this action come from validated and approved methods for determining biomass and therefore represent better estimates of the total biomass of central anchovy and therefore are the best scientific information available for use in determining the OFL. NMFS notes, however, that if one were to compare the MacCall and Thayer time series of biomass estimates to the information that NMFS used to calculate the OFL in this final rule, the range of the estimates (eg. both the average and the median) are actually fairly similar. And in one scenario, using the time series of

calculated biomass estimates from the Thayer papers actually produces an average biomass value of 425,000 mt., which is higher than the average of the three years used by NMFS of approximately 395,000 mt. Using this higher average biomass to calculate an OFL would subsequently result in a higher OFL than the one in this final rule.

The commenter also relies on a time series of data incorporating the biomass estimates from MacCall and Thayer in stating that the anchovy biomass was below the proposed ACL in recent years. As stated above, NMFS has determined that these estimates of biomass do not represent the best scientific information available regarding the current or past status of the stock. As noted above other information, also directly contradicts the commenter's assertion that the population of anchovy was ever as low as stated in the MacCall paper (lower than 20,000 mt and potentially as low as 6,000 mt) including that actual fishery landings exceeded these levels in the same years while at the same time, large amounts of anchovy are also being consumed by predators. For example, in 2015, just over 17,000 mt of central anchovy were caught in U.S. waters alone, while Thayer *et al.* 2017 estimated that the population was only 5,000 mt in 2015.

Similarly, the commenter questions NMFS's choice to not use a NMFS ATM estimate of abundance from 2015 as well as apparent egg production estimates and other egg and larval data from CalCOFI data. NMFS did consider the degree to which NMFS could use the 2015 ATM estimate. NMFS determined that this estimate could not be used because the 2015 ATM estimate was calculated during the first year the SWFSC had attempted an ATM estimate for central anchovy, because of the uncertainty associated with the estimate, and because the estimate was never finalized by the SWFSC, determined to be best available science, or published by the SWFSC in a final technical

report. As it relates to existing or potential estimates from egg and larval data, the commenter cites an index of abundance presented by NMFS scientists in 2016 for the years 1981-2015, as well as information presented at the November 2018 Council meeting by NMFS SWFSC staff, that the commenter states showed "...data on 2017 egg production and corresponding spawning stock biomass estimates for CSNA, indicating the agency is able to convert the relative egg production index to absolute biomass." The commenter further states that "[t]his presentation also included time series of CSNA spawning biomass from DEPM, DEPM Light, and CalCOFI eggs & larvae for 1982, 1983, 1984, 2009-2011, and 2017, including a spawning biomass of 15,000 mt from 2009-2011". While it is true that in 2016 NMFS attempted to produce egg production estimates in a manner similar to the method used in the MacCall paper (although NMFS made some modifications to try to correct some of the faults in the method used in the MacCall paper), NMFS reached the same conclusion as it had when reviewing the 2015 ATM estimate, that is, that the data was not suitable for estimating the total biomass of the central anchovy stock. This conclusion is also stated in the presentation the commenter references. NMFS is somewhat unclear as to what information the commenter is referencing when using the phrase "indicating the agency is able to convert the relative egg production index to absolute biomass," except perhaps there is confusion regarding the various methods used for the data presented. The presentation does include the 2017 DEPM estimate used by NMFS for this action, as well as some historical DEPM point estimates for reference, as well as non-DEPM methods, such as the MacCall estimates; however to clarify, although the 2017 DEPM estimate used by NMFS as part of this rulemaking, the estimates from the MacCall and Thayer papers, the attempted

DEPM-lite and the egg production estimates referenced by the commenter all use some level of egg data; however, all of these different biomass estimates were produced using different methods. For example some of these methods, including the MacCall and Thayer methods, require taking trends in the egg data and expanding or turning those trends into an estimate of absolute biomass. This type of expansion is one of the technical flaws mentioned above that makes estimates from these methods unreliable for estimating total biomass. Whereas, the 2017 DEPM estimate does not suffer from this same weakness because it is a direct calculation derived using reproductive information from adult fish collected in the same year as the egg and larval information, which is not the case for the MacCall and Thayer biomass estimates. By taking data from adult fish from the same year in which the egg data are collected,, there is not a need to expand the egg data into estimates of biomass based adult information from a different time period, such as the 1980's as done in the MacCall paper. In addition, the 2017 DEPM estimate used by NMFS in this final rule was derived using egg data from more than just the core CalCOFI region. The survey data used for this estimate was from north of San Francisco to San Diego, and therefore it covered the majority of the range of central anchovy in U.S waters. By comparison, the northern extent of the CalCOFI data used in for the MacCall and Thayer estimates is near Point Conception, California.

Comment 2: The Council commented that, although it had limited time to review the proposed rule, it considered the proposed OFL, ABC, and ACL as viable replacements for these reference points for central anchovy at this time. The Council also noted that the CPS FMP allows reference points to be updated, if necessary, as new scientific information becomes available. The Council's comment letter described its

future plans to investigate other approaches for setting the central anchovy reference points in the future.

Response: NMFS recognizes that the Council had limited time to review the proposed rule, and appreciates the Council scheduling time at its April meeting to allow the Council and its advisory bodies to review the proposed reference points. NMFS will continue to support Council efforts to research central anchovy reference points and management approaches.

Comment 3: A number of commenters expressed concern over the perceived indefinite and/or static nature of the proposed reference points. Commenters stated that setting reference points indefinitely for central anchovy would not account for the variability of the stock size from one year to the next, and may not prevent overfishing in years when the population is small. Related to this comment was a comment that the ABC control rule NMFS used to set reference points in this action does not prevent overfishing because it does not account for the variability in central anchovy population levels. Oceana also commented that new information shows that the anchovy population is highly variable.

Response: The management framework in the CPS FMP adjusts reference points for some stocks each year based on annual estimates of total biomass, typically from integrated stock assessments. For other stocks, such as central anchovy, the FMP uses conservative catch limits that are not adjusted annually. The CPS FMP management framework is described in further detail in the preamble of this rule and in the proposed rule, but is not the subject of this rulemaking. Therefore, NMFS is not re-opening the CPS FMP management regime or the ABC control rule used in this rule, which provides

for a 75 percent reduction to the OFL. This management regime and ABC control rule were recommended by the Council's SSC and approved by NMFS in 2000 through Amendment and reaffirmed through Amendment 13 in 2011.

Although the reference points implemented in this rule will not be adjusted until the Council or NMFS takes a new action to change them, they are not intended to be in place indefinitely. The CPS FMP explicitly allows the Council to recommend changes, updates, or revisions to reference points at any time based on new scientific information. Additionally, these commenters appear to assert that "overfishing" of the stock will occur if, in a single year or a few consecutive years, the biomass of the stock is 75 percent or more below the average biomass used to calculate the OFL. This assertion however assumes that the OFL is equal to the average biomass used in the OFL calculation, when in fact the OFL is substantially lower than average biomass. Conceptually, one can view the OFL as a proxy for MSY and bydefinition, MSY is a long-term average yield, not biomass, and is intended to represent the amount of fishing mortality that may sustainably occur over the long term, even with variability in stock biomass. The annual estimate of central anchovy stock biomass may be higher or lower than average biomass in a given year, without overfishing occurring. And because the ABC/ACL level has been substantially reduced from the OFL/MSY level, which was reduced from average biomass, the annual estimate of central anchovy biomass may also be above or below this level without overfishing occurring.

Regarding the ABC control rule, *i.e.* the 75 percent buffer from OFL to ABC, NMFS further notes that this buffer is intended to account for scientific uncertainty in the estimate of stock biomass, and ensures that overfishing does not occur if there are large

changes in abundance from one year to the next. The commenter imagined an example stock that declines from 715,000 mt to 167,000 mt over a 3-year period (a 77 percent decline from 1985-1988), and stated that reducing a static OFL by 75 percent is not sufficient to prevent overfishing. The commenter noted that, had an overfishing limit and associated catch limits been set based on the 1985 biomass of 715,000 mt, an ABC set using the 75 percent buffer would not have been sufficient to prevent overfishing.

If NMFS did in fact set the OFL based on an estimate of biomass of 715,000 mt, then the resulting OFL based on the same methodology in this action would be 170,885 mt. In this case, the resulting ABC would be 42,712 mt. If the biomass then declined to 167,000 mt, then a removal of 42,712 mt would only be a 25 percent harvest rate, which would still be precautionary for a fast growing and highly productive species like central anchovy. Additionally, the methodology that NMFS used in this rulemaking for determining the OFL does not set the OFL equal to a single estimate of biomass.

NMFS agrees that there is considerable variability in the central anchovy population, and notes that the original CPS FMP recognized this variability. The analysis used to approve the originally CPS FMP, which is when the Council first adopted the ABC control rule for stocks in the monitored management category, highlights the variability of CPS stock sizes in multiple places. For instance the CPS FMP states that “extreme natural variability and susceptibility to recruitment overfishing are characteristic of clupeoid stocks.” Central anchovy is a clupeoid stock. Additionally, the CPS FMP cites multiple scientific studies showing that central anchovy goes through “boom and bust” cycles and has done so even back to historical time frames (over 1,000 years ago) before there was commercial fishing on the stock. NMFS notes that the

concept of potential risks of fishing at a constant level on variable stocks like those in the CPS FMP, is not a new concept as implied by the commenter, and was also recognized in the original CPS FMP and therefore were considered and properly accounted for when determining and adopting the monitored stock control rules. The CPS FMP states, “The original theoretical definition of MSY as a constant level of catch should not be applied in the CPS fishery, because biomass and productivity of most CPS change in response to environmental variability on annual and decadal time scales. For example, the theoretical, deterministic equilibrium MSY catch level for Pacific sardine under favorable environmental conditions may be greater than the biomass of an unfished stock under unfavorable environmental conditions (Jacobson and MacCall 1995). Any reasonable level of MSY as a constant catch will result in low biomass levels and risk to the stock during unproductive periods when abundance tends to decline.” This is why catch levels are not set at MSY under the CPS FMP, instead, the Council and NMFS determined that applying the conservative monitored stock control rule, which sets catch substantially below MSY catch levels alleviate the concern that some of the resulting annual catch levels could be detrimental to the stock.

Furthermore, the available data and information for this stock does not indicate that fishing at similar levels seen over the last 20 years jeopardizes the long-term productive capacity of the stock, even when biomass levels are relatively low. NMFS acknowledges that the stock was likely at relatively lower levels at times in the past decade, but even assuming the stock reached the anomalously low levels calculated by the MacCall and Thayer for 2009-2015, fishing continued at historical levels and the stock recovered very substantially in the immediately following years according to all of

the available biomass estimates. Nothing in the recent experience for this stock suggests that “overfishing” is occurring or likely with the ACL adopted by this final rule. To the contrary, the scientific consensus long has been that fishing is not having any significant impact on this stock, and the more recent biomass data only confirm that conclusion.

Finally, as part of NMFS’ general responsibilities, we will continue to collect information on the abundance of central anchovy, likely through the results of ATM surveys, and report that information to the Council to ensure adequate conservation and management of the stock. Separately, if NMFS were to observe any anomalously low fluctuations in the population, we would directly inform the Council of the changed conditions and determine if a change in the management of the stock is warranted to conserve central anchovy.

Comment 4: NMFS received two comments, one from the whale watching business and one from a wildlife photographer, expressing concern over potential impacts to humpback whales from anchovy fishing in and around Monterey Bay, California. In particular, commenters stated that fishing may cause localized depletion of anchovy, which is a prey species for humpback whales, and may ultimately impact businesses that involve humpback whales, such as whale watching and other tourism.

Response: Although not specifically requested in the comments as a way to mitigate potential localized depletion effects, we note that area closures to mitigate potential localized depletion or user group conflicts or other measures to restrict anchovy fishing in Monterey Bay or other areas are outside the scope of this action. Humpback whales are globally distributed and are highly migratory. The whales spend spring, summer, and fall feeding in temperate or high-latitude areas of the North Atlantic, North

Pacific and Southern Ocean, and migrate to the tropics in winter to breed and calve. Recent NMFS status reports show humpback whales are increasing in abundance throughout much of their range, with some populations that occur off of California to feed no longer warranting listing as endangered under the Endangered Species Act. Humpback whales off the central California coast are highly migratory, breeding in Costa Rica and Mexico and traveling to central California to forage. Humpback whales are believed to be largely opportunistic foragers (Fleming *et al.*, 2015), who target a wide variety of prey species (Whitteveen, 2006). They are known to feed on several types of small schooling fish and krill, and their prey consumption is likely an indicator of dominant prey types in the ecosystem. Each year, the distribution of these whales off the West Coast can shift based on a variety of biological and environmental conditions. These whales typically undertake regular migrations between feeding and breeding areas. Environmental conditions will also vary and influence the distribution of prey species (*e.g.*, krill and small fishes) the whales need. Given their diverse diet and migratory patterns, it is unlikely that the removal of a portion of one prey source in one localized geographic area would have a substantial negative impact on their population. Additionally, although central anchovy can often be found in Monterey Bay, there is not a separate resident population of central anchovy within Monterey Bay. Along with moving up and down the coast, anchovy also move in and out of Monterey Bay and this movement happens regardless of fishing pressure. This pattern may be linked to whether or not krill, one of their preferred prey species, are available in more offshore waters. NMFS is actively engaged in trying to understand the drivers of humpback whale foraging patterns along the U.S. West Coast to enhance the ecosystem science used in our

fisheries management. These include, in particular the patterns witnessed recently of humpback whales moving inshore because of a lack of krill offshore.

Comment 5: Oceana also commented that NMFS should set the ACL below ABC to account for predator needs and other relevant ecological, economic, and social factors, to achieve optimum yield.

Response: Although the ACL can be set lower than the ABC (which has already been reduced from OFL) for OY considerations, as it relates to predator needs NMFS has determined that no further reductions are warranted based on the record. With regard to the potential indirect impact to central anchovy predators through the removal of a prey source, because the ACL is set equal to the ABC, and the ABC has already been substantially reduced to account for scientific uncertainty to protect central anchovy from overfishing and OY considerations, harvesting up to the ACL level should have a minimal effect on central anchovy populations. As discussed above, the recent biomass trends support this conclusion. Populations of anchovy fluctuate frequently, primarily triggered by larger ecosystem and environmental changes and regardless of fishery harvests, which generally amount to a relatively small proportion of central anchovy biomass even at lower biomass levels. Therefore, it is unlikely that removing up to the ACL will reduce the total abundance of central anchovy in a manner that would indirectly impact predator populations. Additionally, given that harvest rates of central anchovy have generally been well below this ACL, with little expectation they will increase significantly in the short term, and the fact that central anchovy is only one component of much larger forage base upon which most predators in the California Current Ecosystem (CCE) along the U.S. West Coast depend, harvest at the level of the ACL would likely

not have a discernable impact as a removal of a prey source. Furthermore, there is no direct evidence that the current fishing levels are having direct competition effects on species that feed on central anchovy. The likely reason for this, as reflected in most studies on the subject, is that predators of CPS in the CCE have opportunistic diets and do not depend on one specific prey item. For example, many documented predators of sardines showed no signs of population stress or decline during periods of very low sardine abundance in the CCE from the 1950s through the 1980s when their diets reflected an absence of this prey resource.

NMFS did not identify any other economic, ecological or social reasons to reduce the ACL from the ABC.

Classification

NMFS is issuing these regulations under Magnuson-Stevens Act section 305(d), 16 U.S.C. 1855(d).

Pursuant to the procedures established to implement section 6 of E.O. 12866, the Office of Management and Budget has determined that this final rule is not significant.

A final regulatory flexibility analysis (FRFA) was prepared as part of the regulatory impact review. The FRFA describes the economic impact this final rule may have on small entities. A description of the action, why it is being considered, and the legal basis for this action are contained at the beginning of this section in the preamble and in the SUMMARY section of the preamble and is not repeated here. The results of the analysis are stated below. A copy of this analysis is available from NMFS (see **ADDRESSES**).

For Regulatory Flexibility Act (RFA) purposes only, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (see 50 CFR 200.2(a)). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of \$11 million for all its affiliated operations worldwide.

The action being implemented through this final rule is the establishment of a new OFL, ABC, and ACL for the central anchovy.

The small entities that would be affected by this action are the vessels that harvest central anchovy as part of the West Coast CPS purse seine fleet. The average annual per vessel revenue in 2016 for the West Coast CPS finfish small purse seine fleet, as well as the few vessels that target anchovy off of Oregon and Washington, was below \$11 million; therefore, all of these vessels are considered small businesses under the RFA. Because each affected vessel is a small business, this final rule is considered to equally affect all of these small entities in the same manner. Therefore, this rule would not create disproportionate costs between small and large vessels/businesses.

To evaluate whether this final rule could potentially reduce the profitability of affected vessels, NMFS compared current and average recent historical landings to the proposed ACL (maximum fishing level for each year). The ACL for central anchovy is 23,573 mt. In 2018, approximately 17,040 mt of central anchovy were landed. The annual average harvest from 2009 to 2018 for central anchovy was 7,020 mt. Therefore, although the establishment of a new ACL for this stock is considered a new management

measure for the fishery, and is lower than the previous ACL level of 25,000 mt, this action should not result in changes in current fishery operations. As a result, it is unlikely that the ACL implemented in this rule will limit the potential profitability to the fleet from catching central anchovy and thus would not impose significant economic impacts.

The central anchovy fishery is a component of the CPS purse seine fishery off the U.S. West Coast, which generally fishes a complex of species that also includes the fisheries for Pacific sardine, Pacific mackerel, jack mackerel, and market squid. Currently there are 58 vessels permitted in the Federal CPS limited entry fishery off California. Annually, 32 of these 58 CPS vessels landed anchovy in recent years.

CPS finfish vessels typically harvest a number of other species, including Pacific sardine, Pacific mackerel, and market squid, making the central anchovy fishery only one component of a multi-species CPS fishery. Therefore, the revenue derived from this fishery is only part of determining the overall revenue for a majority of the vessels in the CPS fleet, and the economic impact to the fleet from the action cannot be viewed in isolation. CPS vessels typically rely on multiple species for profitability because abundance of the central anchovy stock, like the other CPS stocks, is highly associated with ocean conditions and seasonality. Variability in ocean conditions and season results in variability in the timing and location of CPS harvest throughout the year. Because each species responds to ocean conditions in its own way, not all CPS stocks are likely to be abundant at the same time. Therefore, as abundance levels and markets fluctuate, the CPS fishery as a whole has relied on a group of species for its annual revenues.

NMFS reviewed and evaluated other methods and data sources to update the estimate of MSY or develop a new long-term OFL. However, NMFS had limited time to

fully review these types of methods; therefore, an alternative such as this was not fully developed. The CPS FMP also states that the ACL is set equal to the ABC or lower if determined necessary to prevent overfishing or for other OY considerations not already build into the ABC control rule. This action sets the ACL equal to the ABC which is the maximum level it can be set; other alternatives for the ACL could only set it lower, creating a higher potential for negative economic impact on the directly affected fishermen. Additionally, this action maintains the management approach set in the FMP for stocks in the monitored category, which dictates how the OFL and ABC can be set, thereby limiting the alternatives for these values.

Thus, no significant alternatives to this final rule exist that would accomplish the stated objectives of the applicable statutes while minimizing any significant economic impact of this rule on the affected small entities. However, as stated above, this final rule is not expected to have a significant economic impact on the regulated fishermen.

This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

Authority: 16 U.S.C. 1801 *et seq.*

Dated: May 28, 2019.

Samuel D. Rauch, III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 660 is amended as follows:

PART 660--FISHERIES OFF WEST COAST STATES

1. The authority citation for part 660 continues to read as follows:

Authority: 16 U.S.C. 1801 *et seq.*, 16 U.S.C. 773 *et seq.*, and 16 U.S.C. 7001 *et seq.*

2. In § 660.509, paragraph (a) is revised to read as follows:

§ 660.509 Accountability measures (season closures).

(a) *General rule for this subpart.* When the directed fishery allocation, incidental allocation, annual catch limit is reached for any CPS species, the fishery for that CPS species will be closed until the beginning of the next fishing period or season. The Regional Administrator shall announce in the **Federal Register** the date of such closure, as well as any incidental harvest level(s) recommended by the Council and approved by NMFS.

* * * * *

3. In § 660.511, paragraph (k) is added to read as follows:

§ 660.511 Catch restrictions.

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- (k) The following ACLs apply to fishing for monitored stocks of CPS finfish:

- (1) Northern Anchovy (Central Subpopulation): 23,573 mt.

- (2) [Reserved]

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